

# Research Associate

Cancer Research UK Cambridge Institute

Closing date: Friday 8<sup>th</sup> November 2024  
Job Reference: SW43679



# Postdoctoral Research Associate

**Salary:**

£36,024 - £44,263

**Contract:**

Fixed Term (1 year in the first instance)

**Location:**

Cambridge

**Faculty / Department:**

Cancer Research UK Cambridge Institute

**Responsible to:**

Professor Sir Steve Jackson

**Working Pattern:**

Full Time

**Purpose of the role**

We are looking for a talented and motivated postdoctoral scientist to join the lab of Professor Sir Steve Jackson (<https://www.stevejacksonlab.org/>), based in the internationally renowned [Cancer Research UK Cambridge Institute](#) located on the Cambridge Biomedical Campus, Cambridge, UK.

DNA in our cells is frequently subject to a wide array of molecularly distinct forms of damage. To cope with this, life has evolved multiple DNA repair and associated processes, collectively termed the DNA-damage response (DDR). While considerable progress has been made in identifying DDR components and their regulators, much remains to be learned about how they operate and are controlled.

We are seeking candidates who can build on successful recent work in our laboratory to:

- Identify novel genetic and functional relationships between DDR genes/proteins, and between these and other cellular components, thereby providing fundamental insights into how mammalian cells respond to DNA damage and defining how such responses are controlled and coordinated.
- Expand our knowledge of how DDR processes are affected by protein post-translational modifications, particularly ubiquitylation and phosphorylation.
- Establish how defects and deregulation of certain DDR processes affect cellular sensitivity and resistance to established and emerging cancer therapies; and identify the potential clinical relevance of these affects in cancer and/or genetic diseases caused by DDR deficiencies.

The work will be multi-disciplinary, combining recently established genome engineering and genetic screening approaches in human or mouse cells with next-generation sequencing, bioinformatics, cell biology, molecular biology and biochemistry.

Funds are limited (1 year in the first instance) so we are particularly keen to hear from candidates who have recently or are about to gain their PhD and wish to develop in a well-established, well-resourced DDR lab. Full support will be provided for candidates wishing to apply for their own fellowship.

You will play key roles in a highly collaborative research programme, within the context of a large, vibrant and interactive research group, so a friendly and collegial attitude is essential.



# Person Specification

Criteria	Essential	Desirable
<b>Education and qualifications</b>		
PhD in Biology, Biochemistry, or another relevant Biological Science discipline	✓	
<b>Relevant experience</b>		
Strong cell biology and molecular biology laboratory experience	✓	
Tissue culture techniques and cellular assays in mammalian cells	✓	
<b>Specialist knowledge &amp; skills</b>		
Knowledge of the DNA damage response		✓
Experience in flow cytometry and microscopy		✓
Next generation sequencing		✓
CRISPR-based gene editing technologies		✓
Biochemical assays		✓
Knowledge of bioinformatics		✓
<b>Competencies</b>		
Strong oral and written communication skills in English	✓	
Pursuit of the highest standards of scientific excellence	✓	
Excellent organisational skills and a systematic and rigorous approach to work	✓	
High attention to detail	✓	
Result orientated and deadline driven	✓	
Ability to work independently and as part a multidisciplinary team	✓	

# Behavioural Attributes

This section summarises the behavioural attributes (or competencies) that we expect the role holder to be able to demonstrate, at what level and whether this is an essential or desirable requirement. Full definitions are at: <https://www.hr.admin.cam.ac.uk/policies-procedures/behavioural-attributes> Please review these and provide specific examples in your application of how you have demonstrated these attributes in your work, education or other experience. It will assist your application if you explain the situation, what you did and what the outcomes were.

Behavioural Attribute	Level (defined by Grade)	Description:
Communication	C (Grades 4,5,6,7)	Level C: Communicates effectively and appropriately with a variety of stakeholders including external partners, teams, colleagues and contacts.
Relationship Building	B (Grades 7,8,9)	Level B: Develops and maintains existing partnerships. Builds teams and identifies means of enhancing their effectiveness
Valuing Diversity	A (all Grades)	Considers and respects the ideas, circumstances and feelings of others. Treats everyone with fairness and respect, adhering to the principles of diversity and inclusion.
Achieving Results	B (Grades 7,8,9)	Level B: Identifies and manages important issues and problems effectively. Plans and monitors the work of others and takes accountability for their levels of performance and success.
Strategic Focus	C (Grades 6,7)	Level C: Implements the University's strategy and planning activity within the team. Supports the University's mission and priorities.
People Development	C (Grades 5,6,7)	Level C: Demonstrates effective people management skills. Promotes and facilitates the development of others.
Negotiating and Influencing	C (Grades 6,7,8)	Level C: Persuades and influences peers and managers through consideration of their interests, involvement and consultation.
Innovation and Change	C (Grades 5,6,7)	Level C: Develops and promotes new ways of working to improve performance within team and institution.

# CRUK Cambridge Institute

The Cancer Research UK Cambridge Institute (CRUK CI, [www.cruk.cam.ac.uk](http://www.cruk.cam.ac.uk)), housed in the Li Ka Shing Centre, focuses on tumour ecology and evolution. We are one of 4 CRUK core-funded Institutes, the others being the Manchester Institute, The Beatson Institute, and The Francis Crick Institute.

The CRUK CI has a diverse faculty comprising both basic and clinical investigators and aims not only to contribute fundamental discoveries in the basic biology of cancer but also to translate these into the clinic in a way that benefits patients. We have particular strengths in genomics, computational biology, and imaging, and currently devote significant research effort to cancers arising in the breast, pancreas, brain, and colon.

Our underlying philosophy is that only by embracing the full complexity of human cancers will we be able to devise new and effective treatment strategies. This leads many of our groups to examine questions relating to tumour heterogeneity, both between and within individual patients, with a goal of understanding how genomic and phenotypic diversity impact the course of disease development and its response to treatment. We also study the ecology of tumours, probing how interactions between tumour cells and the normal cells of the patient influence their respective behaviours. This includes immune cells but extends to other cell types of the stroma and vasculature. Overall, the Institute seeks to build within areas of strength but is also keen to extend our reach to other cancers of unmet need.

We are a core-funded Institute, receiving generous and flexible support from CRUK, which is meant both to provide a state-of-the-art research environment and to enable investigators to engage in high risk/high reward and/or long-term strategic research programs that would be unlikely to be funded by other mechanisms. We are currently supported by 12 core facilities, whose remits range from genomics and proteomics to whole animal imaging. We also benefit from a dedicated, professional administrative staff.

We have a highly interconnected and collaborative faculty and a vibrant research

environment. We serve as a significant hub within the broader Cambridge cancer community and house the headquarters of the CRUK Cambridge Centre, the largest of the CRUK Major Centres. In addition, the CI contributes to many of the collaborative centres and initiatives that Cancer Research UK helps to support, including the [Cambridge Biomedical Research Centre](#), the [Experimental Cancer Medicine Centre](#), and the [Cambridge Pancreatic Cancer Centre](#).

We are sited on the Cambridge Biomedical Campus, home to Addenbrooke's Hospital, the University of Cambridge teaching hospital. This site, which encompasses the largest biomedical research cluster in Europe, also hosts many of our collaborating institutes, including the [MRC Laboratory for Molecular Biology](#), the [Hutchison/MRC Research Centre](#), the [Strangeways Research Laboratories for Genetic Epidemiology](#), the [Wellcome Trust Stem Cell Institute](#) and the [Cambridge Institute for Medical Research](#). The campus will soon be home to the Astra Zeneca world headquarters. In the wider Cambridge area we also have extensive links with the [Wellcome Trust Sanger Institute](#), and the [European Bioinformatics Institute](#). The CI is also a member of the [Organisation of European Cancer Institutes \(OECI\)](#).

Overall, the CRUK Cambridge Institute provides an outstanding scientific environment in which investigators are driven to make critical contributions to our understanding of cancer and its treatment.



Professor Greg Hannon, Director of Cancer Research UK Cambridge Institute

# School of Clinical Medicine

Doing great work in a great place to work

## About the School

The School of Clinical Medicine currently employs nearly 3,000 people, spanning all varieties of staff type from Academic Professors to administrative support.

In 1976 in response to the recommendation of the Royal Commission on Medical Education in the late 1960's, a complete medical course was re-established in Cambridge with the opening of the School of Clinical Medicine at the new Addenbrooke's Hospital site.

On 21st November 1980, HRH The Duke of Edinburgh, the Chancellor of the University of Cambridge, officially opened the Clinical School Building which presently accommodates the medical library, lecture theatres and seminar rooms.

The University of Cambridge School of Clinical Medicine aspires to change the practice of medicine and improve biological understanding in a wide range of clinical specialties and scientific disciplines. Collaborative research, both within biomedicine and crossing the boundaries to the mathematical, physical and social sciences, is key to our approach. The School also supports key enabling technologies and facilities in imaging, bioinformatics and biological systems. The main areas of research interest are:

- Cancer research
- Cardio-Respiratory Medicine
- Cellular mechanisms of disease
- Diabetes, Endocrinology and Metabolism
- Epidemiology, Public Health and Primary Care
- Genetics and Genetic Medicine
- Haematological and Transplantation Medicine
- Infection and Immunity
- Neurosciences and Mental Health
- Stems Cells and Regenerative Medicine.



**Professor Patrick Maxwell, Regius Professor of Physic and Head of the School of Clinical Medicine**

The School aims to provide leadership in education, discovery and healthcare. It will achieve this through; inspirational teaching and training, outstanding basic and clinical research and integration of these to improve medical practice for both individual patients and the population.

## The School will:

Through inspirational teaching and training, educate individuals who:

- will become exceptional doctors or biomedical scientists
- combine a depth of scientific understanding with outstanding clinical and communication skills demonstrate a caring, compassionate and professional approach to patients and the public and
- are equipped to become future international leaders of their profession.

Through its commitment to the pursuit of excellence, support scientists of international standing in basic and clinical research aiming to:

- understand fundamental biology and thereby the mechanisms underlying disease integrate basic and clinical research
- apply a rigorous mechanism-based approach to clinical problems and
- innovate to solve the health challenges of our society.

# Terms of Appointment

## Tenure and probation

Appointments will be made on a fixed -term basis for a period of 1 year in the first instance.

Appointments will be subject to satisfactory completion of a six month probationary period.

## Hours of Work and Working Pattern

The hours of work for the position are 37 hours per week, working Monday – Friday.

## Pension

You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefits pension scheme. For further information please visit: [www.pensions.admin.cam.ac.uk](http://www.pensions.admin.cam.ac.uk).

## Annual leave

Full time employees are entitled to annual paid leave of 41 days inclusive of public holidays. For new part-time employees, annual leave will be pro rata'd based on days worked.

## General information

### Pre-employment checks

### Right to work in the UK

We have a legal responsibility to ensure that you have the right to work in the UK before you can start working for us.

If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it.

**Health declaration** Once an offer of employment has been made the successful candidate will be required to complete a work health declaration form.

**Qualifications** The person specification for this position lists

qualifications that are essential and/or desirable. Please note that if you are offered the post you will be asked to provide your relevant original certificates of these qualifications.

**References:** Offers of appointment will be subject to the receipt of satisfactory references.

### Screening Checks

This role requires a basic disclosure and a security check. Any offer of employment we make to you will be conditional upon the satisfactory completion of these checks; whether an outcome is satisfactory will be determined by the University.

The nature of this role means that the successful candidate will also need to undergo a health assessment.

### Equality and Diversity

We particularly encourage women and candidates from a Black, Asian and Minority Ethnic background to apply for this vacancy as they are currently under-represented at this level within our University.

### Information if you have a disability

The University welcomes applications from individuals with disabilities. We are committed to ensuring fair treatment throughout the recruitment process. We will make adjustments to enable applicants to compete to the best of their ability wherever it is reasonable to do so and, if successful, to assist them during their employment.

Information for disabled applicants is available at

<http://www.admin.cam.ac.uk/office/s/hr/staff/disabled/>

We encourage you to declare any disability that you may have, and any reasonable adjustments that you may require, in the section provided for this purpose in the application form. This will enable us to accommodate your needs throughout the process as required. However, applicants and employees may declare a disability at any time.

If you prefer to discuss any special arrangements connected with a disability, please contact the HR team via:

[Mailbox-hr@cruc.cam.ac.uk](mailto:Mailbox-hr@cruc.cam.ac.uk)

# The University

**The University of Cambridge is one of the world's oldest and most successful universities. We are a renowned centre for research, education, and scholarship that makes a significant contribution to society. The University is consistently ranked amongst the top universities in the world. Our affiliates have won more Nobel Prizes than any other University.**

Our sustained pursuit of academic excellence is built on a long history of first-class teaching and research within a distinctive collegiate system. For eight centuries our ideas and innovations have shaped the world. Our principal goal is to remain one of the world's leading universities in an increasingly competitive global higher education sector. Today the University of Cambridge is at the centre of a cluster of over 4,300 businesses employing 58,000 people.

Our capital investment projects include the West Cambridge site, the North West Cambridge development and the growth of the Biomedical Campus in the south of the city. The North West Cambridge development includes the opening of a primary school – the first in the UK to be managed by a University. So we are deeply embedded in, and committed to serving, our local community. These are all conspicuous signs of a University that is not only adapting to new needs, but also anticipating the future.

Our mission is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence. Our core values are:

- freedom of thought and expression; and
- freedom from discrimination.





# About Us

**The University is one of the world's leading academic centres. It comprises 150 faculties and departments, together with a central administration and other institutions. Our institutions, museums and collections are a world-class resource for researchers, students and members of the public representing one of the country's highest concentrations of internationally important collections.**

The University has an annual income of £2 billion. Research income, won competitively from the UK Research Councils, the European Union (EU), major charities and industry, exceeds £500 million per annum and continues to grow.

The Colleges and the University remain committed to admitting the best students regardless of their background and to investing considerable resources both in widening access and financial support. The 31 Colleges are self-governing, separate legal entities which appoint their own staff. Many academic staff are invited to join a College as a Teaching Fellow, which provides a further social and intellectual dimension. The Colleges admit students, provide student accommodation and deliver small group teaching.

The University awards degrees and its faculties and departments provide lectures and seminars for students and determine the syllabi for teaching and conducting research.

Our instinct for seeking out excellence and setting up enduring and mutually beneficial collaborations has led us to establish strategic partnerships across the globe. Whether it is the successful Cambridge-Africa Programme involving universities in Ghana, Uganda and elsewhere on the African continent; or the close association with the government of India to pursue new research in crop science; or the creation, with Germany's Max Planck Institutes, of a Cambridge-based centre for the study of ethics, human economy and social change – international partnerships are now an inextricable part of the University's make-up.

*“Through its outstanding education, research and innovation, the University of Cambridge has made – and continues to make – a lasting contribution to human knowledge and is flourishing. By working at the University of Cambridge, you will be joining a vibrant community of students, scholars and professional services staff committed to supporting and enhancing the University's mission to contribute to society.”*

**Prof Deborah Prentice,  
Vice Chancellor 2023**



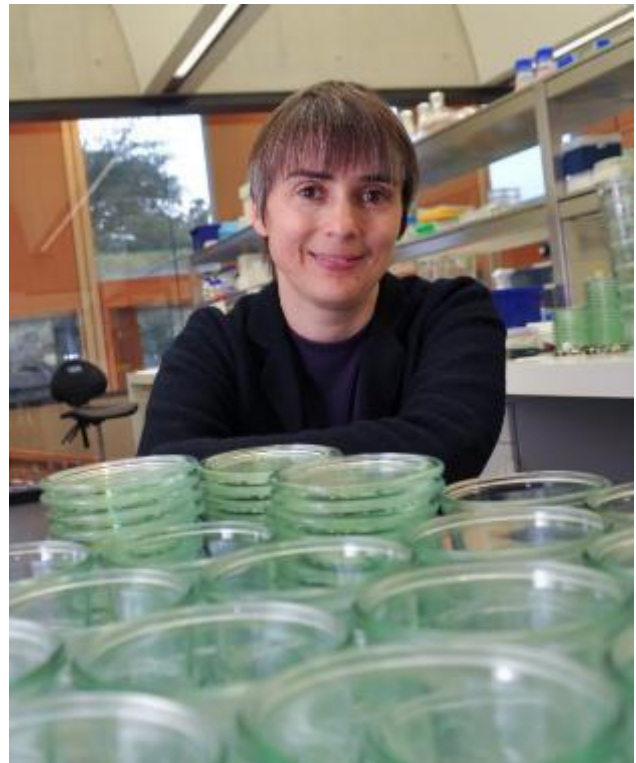
# Working at the University

**Working at Cambridge you will join a diverse, talented and innovative community, with more than 18,000 students and over 16,000 staff from all walks of life and corners of the world.**

The University continually explores strategies to attract and retain the best people. It is committed to supporting its staff to achieve their best. We are a fair, diverse and inclusive society and we believe our staff are our greatest asset. There is strong commitment to developing institutional leadership and supporting and encouraging staff development at all levels.

We offer a variety of roles including academic, research, professional, managerial and support roles. We also offer extensive benefits and excellent learning opportunities within a stimulating working environment.

The University's estate is undergoing the most significant transformation in its history. Cambridge has been able to create a new science and technology campus to the west of the city centre, and is now expanding further to the north west of Cambridge including investing in affordable homes for University key workers and community facilities. Even with our continued development, the University remains within walking or cycling distance across the campus. The University is a major partner on the Cambridge Biomedical Campus and we continue to redevelop our historic city centre sites demonstrating our determination to ensure that we can offer the best facilities and opportunities for our staff and students.



## Equality & diversity

The University has built its excellence on the diversity of its staff and student community. We aim to be a leader in fostering equality and inclusion, and in promoting respect and a sense of belonging for all. We encourage applications from all sections of society. All appointments are made on the basis of merit. We have an Equal Opportunities Policy, along with a range of diversity networks for women, black and minority ethnic and lesbian, gay, bisexual and transgender staff. More details are available here: <http://www.equality.admin.cam.ac.uk/>

The University has a bronze Race Equality Charter aware, with framework for improving the representation, progression and success of minority ethnic staff and students within higher education. Furthermore, the University's Athena SWAN award recognises and celebrates good practice in recruiting, retaining and promoting women.

# Living in Cambridge

**Cambridge is rich in cultural diversity. From beautiful University and College buildings, museums and art galleries, quaint gardens and punts on the River Cam, to a vibrant restaurant and café scene, our employees are surrounded by the wonderful features of this unique city.**

You can find a wide-range of high street shops and 3 shopping centres, with independent alternatives at the historic market and nestled within the passageways in the city centre. You will find a cinema, bowling alley, a nightclub and various live performances At the Cambridge Leisure Park, with further entertainment options at the Corn Exchange, Arts Theatre and the ADC Theatre. Further information can be found on the [Visit Cambridge](#) website.

If you prefer the faster pace of life, London is a 45 minute train journey away. For those travelling from overseas, Stansted Airport is just 45 minutes away and Heathrow Airport under 2 hours away. The University is a short distance from a host of other attractions such as Ely Cathedral, Newmarket Races and various wildlife parks and stately homes. Cambridge is also within easy reach of the beautiful Broads and coastlines of Norfolk and Suffolk.

## Relocation Support

The University recognises the importance of helping individuals to move and settle into a new area. We provide support and guidance to those relocating internationally or domestically to take up a post at the University of Cambridge, liaising with other University offices and selected partners to ensure comprehensive relocation support is available. This includes: accommodation, childcare, schools, banking, immigration and transport. If you would like further information, please visit <https://www.accommodation.cam.ac.uk/>. The Shared Equity Scheme and the Reimbursement of Relocation Expenses Scheme provide financial assistance to qualifying new members of staff with the costs of relocating to Cambridge.

## Accommodation Service

The University Accommodation Service helps staff, students and visiting scholars who are affiliated to the University in their search for suitable accommodation in Cambridge. The dedicated accommodation team can provide access to a wide range of University-owned furnished and unfurnished properties, and has a database of private sector accommodation available for short and long-term lets. For further information and to register with this free service please visit <https://www.accommodation.cam.ac.uk/>



# What Cambridge can offer

**We offer a comprehensive reward package to attract, motivate and retain high performing staff at all levels and in all areas of work.**

The University offers a wide range of competitive benefits, from family leave entitlement, to shopping and travel discount schemes. Our generous annual leave package contributes to the positive wellbeing of our University employees. Sabbatical leave enables academics to focus on research and scholarship, whilst still maintaining their full salary. The University also has a [career break scheme for academic and academic-related staff](#), with additional flexible working policies for all other staff.

## Pay and benefits

The University salary structure includes automatic service-related pay progression in many of its grades and an annual cost of living increase. In addition to this, employees are rewarded for outstanding contribution through a number of regular pay progression schemes. The University offers attractive pensions schemes for employees, with an additional benefit of a salary exchange arrangement providing tax and national insurance savings. Payroll giving is also a simple, tax-efficient way for employees to make monthly donations to charity.



## CAMbens employee benefits

We offer a CAMbens scheme for University employees, providing access to online and in-store shopping discounts and cashback. With more than 2,000 participating retailers, employees can save money on a wide range of household expenses, from groceries and clothes, to holidays and insurance and much more. A range of local discounts are also available, helping employees to save money whilst also supporting local Cambridge businesses and a CAMbens Cycle to Work salary sacrifice scheme is also available, which enables employees to save money on transport costs. A 10% discount rate on the [purchase of train season tickets, bulk buy tickets](#) and an interest free travel to work loan are also available for staff of the University.



# What Cambridge can offer

## Family-friendly policies

The University recognises the importance of supporting its staff. We have a range of family-friendly policies to aid employees' work-life balance including a generous maternity, adoption and shared parental leave entitlement of 18 weeks full pay and emergency family care support via My Family Care.

Other family-friendly support includes:

Our highly regarded workplace nurseries, a childcare salary exchange scheme and a high quality holiday Playscheme may be available to help support University employees with caring responsibilities (subject to demand and qualifying criteria). Further childcare information can be found here:

<https://www.childcare.admin.cam.ac.uk/>

The Newcomers and Visiting Scholars Group is an organisation within the University run by volunteers whose aim is to help newly arrived wives, husbands, partners and families of Visiting Scholars and members of the University to settle in Cambridge and give them an opportunity to meet local people. The Office of Postdoctoral Affairs supports the postdoctoral community within Cambridge. Further details are available here: <https://www.opda.cam.ac.uk/>

## Your wellbeing

The University's Sport Centre, Counselling Services and Occupational Health are just some of the support services available to University employees to promote their physical and mental wellbeing. There are many societies in Cambridge catering for almost every taste and interest. Whether you want to take part in a sport, participate in music or drama, pursue a hobby, or join a political group, you will almost certainly find that a society exists for this purpose. The University also hosts the [Cambridge Science Festival](#) and [Cambridge Festival of Ideas](#), as well as [Open Cambridge](#) weekend, which together attract over 50,000 visitors per year. The festivals are a great opportunity to get your first taste of public engagement, through volunteering, supporting hands-on activities or proposing a talk.

## Development opportunities

We support new employees to settle in through various activities. The encouragement of career development for all staff is one of the University's values and we put this into practice through various services and initiatives. Our Personal and Professional Development Department provides development opportunities and courses for all University employees. These include face-to-face sessions, online learning modules and webinars. Employees may also apply for financial support to undertake training that will lead to a qualification. We offer reduced staff fees for University of Cambridge graduate courses and the opportunity to attend lectures and seminars held by University departments and institutions. Apprenticeship programmes are also available to support employees to develop their skills, experience and qualifications.



# Clinical School Benefits

## Cambridge Biomedical Campus

Being based on Cambridge Biomedical Campus gives the University of Cambridge School of Clinical Medicine employees an unrivalled range of on-site amenities.

### These include:

#### Core amenities

- Marks & Spencer Simply Food
- Clothes & Gift shops
- The Body Shop
- Newsagent
- Barclays Bank
- Hairdressers
- Costa Coffee/Starbucks
- Various food outlets

#### Sports and Leisure

The Frank Lee Sports and Leisure Centre on the Campus is open to everyone who works on the Campus including employees of companies. The Centre offers a comprehensive range of activities for both adults and children (during the school holidays). Facilities include a 25m heated indoor pool, tennis and squash courts, cardio gym and fitness rooms. There is also a licensed bar, restaurant and function rooms.

#### Childcare

Bright Horizons Long Road nursery is located on the Campus making it an ideal location for parents who work at the site. The nursery is purpose built and houses five home bases, each designed specifically for babies, toddlers and pre-school children, as well as a spacious and secure external area in which children can play and explore the outdoors.

#### Apprenticeship opportunities

These are available for new and current members of staff to earn while they learn. The University is committed to nurturing talent and developing expertise through providing relevant vocational and professional apprenticeships across all of its departments and institutions.



## Clinical School Wellbeing Programme

Following the launch of the Clinical School Wellbeing Programme in April 2014 it has continued to develop and grow each year. The School holds regular wellbeing talks and events in addition to hosting two dedicated Wellbeing Weeks packed with activities for staff each year. Activities include staff massages, smoothie bikes, step challenges, arts and crafts sessions and many more.

The School also has a team of Mental Health First Aiders recruited and trained from our own pool of staff. The School is always looking for new ways to engage staff and encourage them to look after their physical and mental wellbeing.



## Equality, Diversity and Inclusion

The School of Clinical Medicine has a dedicated governance group overseeing equality, diversity and inclusion related activities. Regular talks are held throughout the year and all staff members are expected to undertake Equality and Diversity training.

The School has a number of networks for different staff groups encouraging communication and sharing of practices. There is also a growing network of 100+ Equality Champions who meet termly and help raise awareness of equality, diversity and inclusion within their departments. The School currently holds a silver Athena SWAN award utilising the process to critically analyse all areas of equality and diversity within the school.

# How to apply

Applications should be submitted online via the University of Cambridge jobs page [www.jobs.cam.ac.uk](http://www.jobs.cam.ac.uk) by clicking “Apply online” in the job advert. You will need an email address to register for our online system.

If you have any queries regarding the application process or queries relating to the role, please contact:

[Mailbox-hr@cruk.cam.ac.uk](mailto:Mailbox-hr@cruk.cam.ac.uk)



UNIVERSITY OF  
CAMBRIDGE